

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

B1 1. (currently amended) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device, the recording-medium conveying device comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

2. (currently amended) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device

comprising:

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a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

3. (original) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a central part of a driving roller

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and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller.

4. (original) The recording-medium conveying device as claimed in claim 2, wherein a surface of said driving roller is cured.

5. (original) The recording-medium conveying device as claimed in claim 3, wherein a surface of said driving roller is cured.

6. (original) The recording-medium conveying device as claimed in claim 4, wherein the surface of said driving roller is cured by

being coated with urethane.

7. (original) The recording-medium conveying device as claimed in claim 5, wherein the surface of said driving roller is cured by being coated with urethane.

8. (original) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein at least one of said driving roller and said driven roller is a grip roller having a plurality of projections.

9. (original) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a

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separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein at least one of said driving roller and said driven roller is a grip roller having a plurality of projections.

10. (currently amended) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a driving roller and a driven

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roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a timing belt formed by a conductive layer at the other side not contacting said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

11. (original) A recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a timing belt formed by a conductive layer at the other side

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not contacting said recording medium; and

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt.

12. (original) The recording-medium conveying device as claimed in claim 10, wherein said timing belt is formed at at least a part of said other side of said conveying belt.

13. (original) The recording-medium conveying device as claimed in claim 11, wherein said timing belt is formed at at least a part of said other side of said conveying belt.

14. (currently amended) ~~The~~ A recording-medium conveying device as claimed in claim 2 conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an

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insulating layer formed at one side contacting said recording medium
and a conductive layer formed at the other side not contacting said
recording medium;

a belt charging unit provided in contact with said insulating
layer in a vicinity of said separating unit so as to charge said
insulating layer with a positive charge and a negative charge
alternately in a moving direction of said conveying belt by applying an
AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said
driving roller by exerting an elastic force so as to prevent said
conveying belt from slipping on said driving roller,

wherein one of said driving roller and said driven roller
positioned upstream in a conveying direction of said recording medium
has a large diameter, and the other of said driving roller and said
driven roller positioned downstream in the conveying direction of said
recording medium has a small diameter.

15. (original) The recording-medium conveying device as claimed
in claim 3, wherein one of said driving roller and said driven roller
positioned upstream in the conveying direction of said recording medium
has a large diameter, and the other of said driving roller and said
driven roller positioned downstream in the conveying direction of said
recording medium has a small diameter.

16. (original) A recording-medium conveying device conveying a
recording medium to an image recording part, the recording medium being
separated and fed from a recording-medium feeding device, the
recording-medium conveying device comprising:

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a conveying belt wound around a driving roller and a driven roller, the driving roller being connected to a ground, so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at a side contacting said recording medium;

a belt charging unit provided opposite said driving roller at a position upstream in a revolving direction of said driving roller from a position at which said recording medium fed from said recording-medium feeding device contacts said conveying belt wound around said driving roller so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller provided opposite said driving roller at a position downstream in the revolving direction of said driving roller from said belt charging unit so as to press said recording medium stuck fast to said conveying belt closely to said conveying belt.

17. (original) The recording-medium conveying device as claimed in claim 16, wherein the AC bias is impressed to said belt charging unit when said recording medium is conveyed.

18. (previously presented) The recording-medium conveying device as claimed in claim 17, wherein said AC bias is not applied to said belt charging unit when said recording medium is not conveyed.

19. (original) The recording-medium conveying device as claimed in claim 16, wherein the AC bias is impressed to said belt charging unit while said conveying belt is continuously revolved, before said

recording medium is conveyed.

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20. (original) The recording-medium conveying device as claimed in claim 1, wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt conveys said recording medium, and said belt charging unit stops applying said AC bias to said conveying belt while said conveying belt stops conveying said recording medium.

21. (original) The recording-medium conveying device as claimed in claim 1, wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt is continuously revolved, before said conveying belt conveys said recording medium.

22. (original) The recording-medium conveying device as claimed in claim 1, wherein said conveying belt is formed of one layer of said insulating layer.

23. (original) The recording-medium conveying device as claimed in claim 1, wherein said conveying belt is formed of two layers composed of said insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium.

24. (currently amended) The A recording-medium conveying device as claimed in claim 1 conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device, the recording-medium conveying device

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comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein said insulating layer has a volume resistivity equal to or more than 10^{12} Ω cm.

25. (currently amended) The A recording-medium conveying device as claimed in claim 1, further conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device, the recording-medium conveying device comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium;

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

conveyance guides provided at both sides of said conveying belt

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in a widthwise direction thereof so as to guide said recording medium, the conveying belt being formed narrower than said recording medium.

26. (original) The recording-medium conveying device as claimed in claim 25, wherein said conveyance guides comprise a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium.

27. (original) The recording-medium conveying device as claimed in claim 1, further comprising a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller.

28. (original) The recording-medium conveying device as claimed in claim 27, wherein said pressing roller is provided at a position downstream in a revolving direction of said driving roller.

29. (original) The recording-medium conveying device as claimed in claim 1, wherein at least said driving roller among said driving roller and said driven roller has a plurality of projections on a surface thereof.

30. (original) The recording-medium conveying device as claimed in claim 1, wherein said conveying belt is formed of a timing belt.

31. (currently amended) A conveyance control device controlling

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a recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller,

the conveyance control device comprising:

a binary scale provided on a part of said conveying belt along the moving direction thereof,

wherein one of a reflected light and a transmitted light from said binary scale is detected so as to control a revolving velocity and a stopping position of said driving roller, and

a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a

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position at which the recording medium contacts the conveying belt.

32. (original) A conveyance control device controlling a recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device by a separating unit thereof, the recording-medium conveying device including:

a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller,

the conveyance control device comprising:

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a binary scale provided on a part of said conveying belt along the moving direction thereof,

wherein one of a reflected light and a transmitted light from said binary scale is detected so as to control a revolving velocity and a stopping position of said driving roller.

33. (original) The conveyance control device as claimed in claim 31, further comprising an optical sensor provided opposite a part of said conveying belt downstream from and near said driving roller so as to detect one of said reflected light and said transmitted light.

34. (original) The conveyance control device as claimed in claim 32, further comprising an optical sensor provided opposite a part of said conveying belt downstream from and near said driving roller so as to detect one of said reflected light and said transmitted light.

35. (original) The conveyance control device as claimed in claim 31, further comprising an optical sensor provided opposite a part of said conveying belt corresponding to said image recording part so as to detect said reflected light.

36. (original) The conveyance control device as claimed in claim 32, further comprising an optical sensor provided opposite a part of said conveying belt corresponding to said image recording part so as to detect said reflected light.

37. (currently amended) A conveyance control device controlling a recording-medium conveying device conveying a recording medium to an

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image recording part, the recording medium being separated and fed from a recording-medium feeding device, the recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

the conveyance control device comprising:

a conveyance distance detecting unit detecting one of a conveyance speed and a conveyance distance of said conveying belt; and

a conveying-belt driving unit driving said driving roller,

wherein said conveying-belt driving unit is controlled according to one of said conveyance speed and said conveyance distance detected by said conveyance distance detecting unit, and

a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

38. (currently amended) The A conveyance control device as ~~elaimed in claim 37~~ controlling a recording-medium conveying device conveying a recording medium to an image recording part, the recording

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medium being separated and fed from a recording-medium feeding device,
the recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

the conveyance control device comprising:

a conveyance distance detecting unit detecting one of a conveyance speed and a conveyance distance of said conveying belt; and

a conveying-belt driving unit driving said driving roller,
wherein said conveying-belt driving unit is controlled according to one of said conveyance speed and said conveyance distance detected by said conveyance distance detecting unit,

wherein said conveyance distance detecting unit comprises:

a binary scale provided on one of an outer surface and an inner surface of said conveying belt; and

a read sensor reading said binary scale,

wherein said binary scale has pitches arranged at an interval corresponding to a value obtained by dividing a maximum resolution of an image to be recorded on said recording medium by n, where n is an integer larger than zero.

39. (currently amended) The A conveyance control device as

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elaimed in elaim 37 controlling a recording-medium conveying device conveying a recording medium to an image recording part, the recording medium being separated and fed from a recording-medium feeding device, the recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

the conveyance control device comprising:

a conveyance distance detecting unit detecting one of a conveyance speed and a conveyance distance of said conveying belt; and

a conveying-belt driving unit driving said driving roller, wherein said conveying-belt driving unit is controlled according to one of said conveyance speed and said conveyance distance detected by said conveyance distance detecting unit,

wherein said conveyance distance detecting unit comprises an encoder provided on a rotary shaft of said driving roller,

wherein said driving roller has a diameter determined such that a conveyance distance of said conveying belt corresponding to one pulse output by said encoder becomes a value obtained by dividing a maximum resolution of an image to be recorded on said recording medium by n, where n is an integer larger than zero.

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40. (currently amended) An inkjet recording device comprising:
a recording head in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

41. (currently amended) An inkjet recording device comprising:
a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one

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therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

42. (currently amended) An inkjet recording device comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an

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insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

43. (original) An inkjet recording device comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and

a recording-medium conveying device including:

a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower

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than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium;

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller.

44. (original) The inkjet recording device as claimed in claim 42, wherein a surface of said driving roller is cured.

45. (original) The inkjet recording device as claimed in claim 43, wherein a surface of said driving roller is cured.

46. (original) The inkjet recording device as claimed in claim 44, wherein the surface of said driving roller is cured by being coated with urethane.

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47. (original) The inkjet recording device as claimed in claim 45, wherein the surface of said driving roller is cured by being coated with urethane.

48. (original) An inkjet recording device comprising:
a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;
a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and
a recording-medium conveying device including:
a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium; and
a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein at least one of said driving roller and said driven roller is a grip roller having a plurality of projections.

49. (original) An inkjet recording device comprising:
a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

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a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and

a recording-medium conveying device including:

a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium;

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein at least one of said driving roller and said driven roller is a grip roller having a plurality of projections.

50. (currently amended) An inkjet recording device comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording

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medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a timing belt formed by a conductive layer at the other side not contacting said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

51. (original) An inkjet recording device comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom by a separating unit thereof; and

a recording-medium conveying device including:

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a conveying belt wound around a central part of a driving roller and a central part of a driven roller so as to convey said recording medium to said image recording part, the conveying belt being narrower than said recording medium, and having a two-layer structure composed of an insulating layer formed at one side contacting said recording medium and a timing belt formed by a conductive layer at the other side not contacting said recording medium; and

conveyance guides provided at both sides of said conveying belt in a widthwise direction thereof in said image recording part, the conveyance guides having a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium; and

a belt charging unit provided in contact with said insulating layer in a vicinity of said separating unit so as to charge said insulating layer with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt.

52. (original) The inkjet recording device as claimed in claim 50, wherein said timing belt is formed at at least a part of said other side of said conveying belt.

53. (original) The inkjet recording device as claimed in claim 51, wherein said timing belt is formed at at least a part of said other side of said conveying belt.

54. (currently amended) ~~The~~ An inkjet recording device as ~~claimed in claim 42~~ comprising:

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a recording head mounted on a carriage in an image recording part
so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording
medium, and separating and feeding said recording medium one by one
therefrom by a separating unit thereof; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven
roller so as to convey said recording medium to said image recording
part, the conveying belt having a two-layer structure composed of an
insulating layer formed at one side contacting said recording medium
and a conductive layer formed at the other side not contacting said
recording medium;

a belt charging unit provided in contact with said insulating
layer in a vicinity of said separating unit so as to charge said
insulating layer with a positive charge and a negative charge
alternately in a moving direction of said conveying belt by applying an
AC bias to said conveying belt; and

a pressing roller pressing said conveying belt against said
driving roller by exerting an elastic force so as to prevent said
conveying belt from slipping on said driving roller,

wherein one of said driving roller and said driven roller
positioned upstream in a conveying direction of said recording medium
has a large diameter, and the other of said driving roller and said
driven roller positioned downstream in the conveying direction of said
recording medium has a small diameter.

55. (original) The inkjet recording device as claimed in claim
43, wherein one of said driving roller and said driven roller

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positioned upstream in the conveying direction of said recording medium has a large diameter, and the other of said driving roller and said driven roller positioned downstream in the conveying direction of said recording medium has a small diameter.

56. (original) The inkjet recording device as claimed in claim 42, further comprising a binary scale provided on a part of said conveying belt along the moving direction thereof,

wherein one of a reflected light and a transmitted light from said binary scale is detected so as to control a revolving velocity and a stopping position of said driving roller.

57. (original) The inkjet recording device as claimed in claim 43, further comprising a binary scale provided on a part of said conveying belt along the moving direction thereof,

wherein one of a reflected light and a transmitted light from said binary scale is detected so as to control a revolving velocity and a stopping position of said driving roller.

58. (currently amended) An inkjet recording device comprising:
a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;
a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller, the driving roller being connected to a ground, so as to convey

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said recording medium to said image recording part, the conveying belt having an insulating layer formed at a side contacting said recording medium;

a belt charging unit provided opposite said driving roller at a position upstream in a revolving direction of said driving roller from a position at which said recording medium fed from said recording-medium feeding device contacts said conveying belt wound around said driving roller so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a pressing roller provided opposite said driving roller at a position downstream in the revolving direction of said driving roller from said belt charging unit so as to press said recording medium stuck fast to said conveying belt closely to said conveying belt and so as to press said conveying belt against said driving roller,

wherein a first length of a path along which the recording medium travels after being separated by the separating unit and until the recording medium contacts the conveying belt is greater than a second length along the conveying belt from a position of the belt charging unit to a position at which the recording medium contacts the conveying belt.

59. (original) The inkjet recording device as claimed in claim 41, wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt conveys said recording medium, and said belt charging unit stops applying said AC bias to said conveying belt while said conveying belt stops conveying said recording medium.

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60. (original) The inkjet recording device as claimed in claim 41, wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt is continuously revolved, before said conveying belt conveys said recording medium.

61. (original) The inkjet recording device as claimed in claim 41, wherein said conveying belt is formed of one layer of said insulating layer.

62. (original) The inkjet recording device as claimed in claim 41, wherein said conveying belt is formed of two layers composed of said insulating layer formed at one side contacting said recording medium and a conductive layer formed at the other side not contacting said recording medium.

63. (currently amended) ~~The~~ An inkjet recording device as ~~claimed in claim 41~~ comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

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a belt charging unit provided in contact with said conveying belt
and in a vicinity of a separating unit so as to charge said conveying
belt with a positive charge and a negative charge alternately in a
moving direction of said conveying belt by applying an AC bias to said
conveying belt,

wherein said insulating layer has a volume resistivity equal to
or more than 10^{12} Ω cm.

64. (currently amended) The An inkjet recording device as
~~elaimed in claim 41~~ comprising:

a recording head mounted on a carriage in an image recording part
so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording
medium, and separating and feeding said recording medium one by one
therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven
roller so as to convey said recording medium to said image recording
part, the conveying belt having an insulating layer formed at at least
a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt
and in a vicinity of a separating unit so as to charge said conveying
belt with a positive charge and a negative charge alternately in a
moving direction of said conveying belt by applying an AC bias to said
conveying belt,

wherein said recording-medium conveying device further includes
conveyance guides provided at both sides of said conveying belt in a
widthwise direction thereof so as to guide said recording medium, the

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conveying belt being formed narrower than said recording medium.

65. (original) The inkjet recording device as claimed in claim 64, wherein said conveyance guides comprise a plurality of ribs and recession grooves alternately, each of said ribs and said recession grooves being aligned along a conveying direction of said recording medium.

66. (original) The inkjet recording device as claimed in claim 41, wherein said recording-medium conveying device further includes a pressing roller pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller.

67. (original) The inkjet recording device as claimed in claim 66, wherein said pressing roller is provided at a position downstream in a revolving direction of said driving roller.

68. (original) The inkjet recording device as claimed in claim 41, wherein at least said driving roller among said driving roller and said driven roller has a plurality of projections on a surface thereof.

69. (original) The inkjet recording device as claimed in claim 41, wherein said conveying belt is formed of a timing belt.

70. (original) The inkjet recording device as claimed in claim 41, further comprising:

a conveyance distance detecting unit detecting one of a

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conveyance speed and a conveyance distance of said conveying belt; and
a conveying-belt driving unit driving said driving roller,
wherein said conveying-belt driving unit is controlled according
to one of said conveyance speed and said conveyance distance detected
by said conveyance distance detecting unit.

71. (currently amended) The An inkjet recording device ~~as~~
~~elaimed in claim 70~~ comprising:

a recording head mounted on a carriage in an image recording part
so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording
medium, and separating and feeding said recording medium one by one
therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven
roller so as to convey said recording medium to said image recording
part, the conveying belt having an insulating layer formed at at least
a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt
and in a vicinity of a separating unit so as to charge said conveying
belt with a positive charge and a negative charge alternately in a
moving direction of said conveying belt by applying an AC bias to said
conveying belt; and

a conveyance distance detecting unit detecting one of a
conveyance speed and a conveyance distance of said conveying belt; and

a conveying-belt driving unit driving said driving roller,
wherein said conveying-belt driving unit is controlled according
to one of said conveyance speed and said conveyance distance detected

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by said conveyance distance detecting unit,

wherein said conveyance distance detecting unit comprises:

a binary scale provided on one of an outer surface and an inner surface of said conveying belt; and

a read sensor reading said binary scale,

wherein said binary scale has pitches arranged at an interval corresponding to a value obtained by dividing a maximum resolution of an image to be recorded on said recording medium by n , where n is an integer larger than zero.

72. (currently amended) ~~The~~ An inkjet recording device ~~as claimed in claim 70~~ comprising:

a recording head mounted on a carriage in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom; and

a recording-medium conveying device including:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of a separating unit so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt; and

a conveyance distance detecting unit detecting one of a

conveyance speed and a conveyance distance of said conveying belt; and
a conveying-belt driving unit driving said driving roller,
wherein said conveying-belt driving unit is controlled according
to one of said conveyance speed and said conveyance distance detected
by said conveyance distance detecting unit,

wherein said conveyance distance detecting unit comprises an encoder provided on a rotary shaft of said driving roller,

wherein said driving roller has a diameter determined such that a conveyance distance of said conveying belt corresponding to one pulse output by said encoder becomes a value obtained by dividing a maximum resolution of an image to be recorded on said recording medium by n , where n is an integer larger than zero.

73. (new) A recording medium conveying device conveying a recording medium to an image recording part, the recording medium being separated by a separating unit and fed from a recording medium feeding device, the recording medium conveying device comprising:

a conveying belt wound around a driving roller and a driven roller so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer formed at at least a side contacting said recording medium; and

a belt charging unit provided in contact with said conveying belt and in a vicinity of said separating unit and said driving roller so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias to said conveying belt, the belt charging unit including a charge roller pressed onto said conveying belt.
